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Similitrichoconis wongii gen. & sp. nov. from Ecuador

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Abstract—A new anamorphic genus and species *Similitrichoconis wongii* are described and illustrated. The fungus, found on submerged decaying leaf of an unidentified plant in Ecuador, is characterized by blastic production of obclavate to long fusiform, hyaline phragmoconidia that are rostrate above, uncinate below, and produced by schizolytic conidial secession of clear to translucent conidiogenous cells.

Key words—asexual fungi, hyphomycetes, taxonomy, tropics

Introduction

Trichoconis Clem. (typified by *T. caudata* (Appel & Strunk) Clem.) is characterized by distinct conidiophores, conidiogenous cells that are colorless, single or branched, and have polyblastic sympodial denticulate cylindrical denticles that serve as separating cells in which rhexolytic secession occurs. The solitary conidia are variously shaped (fusiform, obclavate, clavate, ellipsoid, subcylindrical, or navicular), apically and laterally arranged, rostrate, septate,

and colorless (Deighton & Pirozynski 1972). The genus comprises primarily fungicolous, lichenicolous, or saprobic fungi (Clements 1909, Pavgi & al. 1966, Deighton & Pirozynski 1972, Pirozynski 1974, Hawksworth 1980, de Hoog & Oorschot 1985, Matsushima 1989, 1993, Castañeda-Ruiz & Kendrick 1991, Castañeda-Ruiz & al. 1997, Baker & al. 2001, Seifert & al. 2011, Braun & al. 2016, Silva & al. 2016). Index Fungorum (2019) lists 25 species names; however four—*T. crotalariae* M.A. Salam & P.N. Rao, *T. echinophila* (C. Massal.) de Hoog & Oorschot, *T. indica* Pavgi & R.A. Singh, and *T. padwickii* Ganguly—are not recognized for *Trichoconis* because they have definite morphological characteristics (Ellis 1971, Baker & al. 2001, Silva & al. 2016, Braun & al. 2016). During a survey of hyphomycetes associated with plant litter from a tropical rainforest at the Río Palenque Scientific Center near Cantón Buena Fé, Los Rios province (Fig. 1), we collected a fungus somewhat similar to *Trichoconis* but which differs remarkably from all other described genera (Seifert & al. 2011) for which we propose a new genus and species.

Materials & methods

Samples of decaying plant materials were collected and placed in plastic bags for transport to the laboratory, where they were washed, treated according to Castañeda-Ruiz & al. (2016), and placed in moist chambers. Several attempts to obtain this species in pure culture by transferring conidia with a flamed needle to transfer conidia to one part corn meal agar and one part carrot extract and incubating at 25 °C; these attempts were unsuccessful. Mounts were prepared either in polyvinyl alcohol-glycerol (8 g PVA in 100 ml H_2O + 5 ml glycerol) and lactofuchsin (0.1 g acid fuchsin in 100 ml 85% lactic acid) according to Carmichael (1955) or 90% lactic acid. Features were measured at 1000× magnification and photographed using a Zeiss Axioskop 40 microscope with bright field optics. The type specimen is deposited in the herbarium of Microorganism Culture Collections of CIBE (CCM_CIBE), Guayaquil, Ecuador.

Taxonomy

Similitrichoconis R.F. Castañeda, M. Vera & D. Sosa, **gen. nov.**

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Differs from *Trichoconis* by its monoblastic terminal determinate conidiogenous cells and schizolytic conidial secession.

Type Species: *Similitrichoconis wongii* R.F. Castañeda & al.

Etymology: *Simili-* (Latin) meaning like, resembling, similar + *-trichoconis* (Latin) referring to the genus *Trichoconis*.

Fig. 1. Mycological survey in the protected rainforest near the Cantón Palenque, Los Rios province, Ecuador.

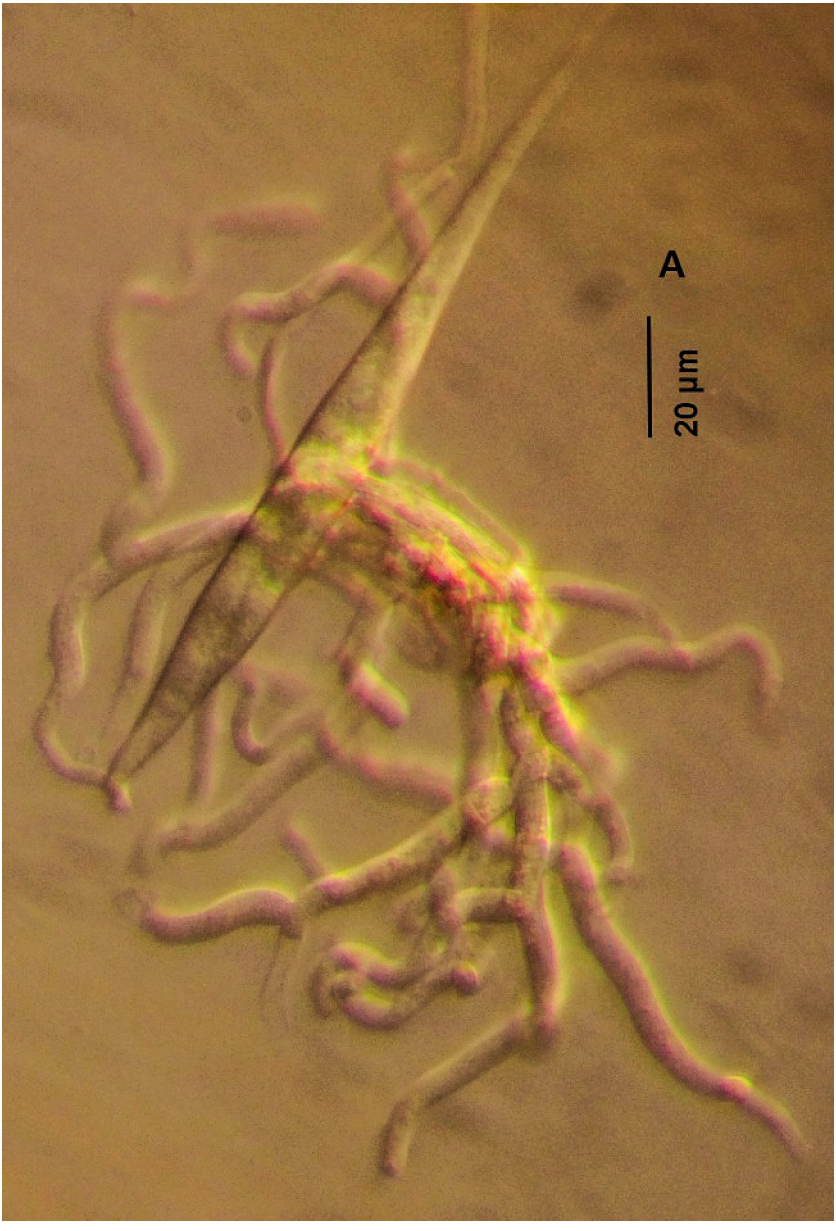

Fig. 2. *Similitrichoconis wongii* (ex-holotype, CCMCIBE-H641). Colony from natural substratum.

Colonies on the natural substrate effuse. Conidiophores macronematous, mononematous, unbranched, hyaline. Conidiogenous cells monoblastic, integrated, terminal, determinate, clear to translucent. Conidial secession schizolytic. Conidia solitary, acrogenous, obclavate to long fusiform, euseptate, phragmosporic, hyaline.

Similitrichoconis wongii R.F. Castañeda, M. Vera & D. Sosa, **sp. nov.** Figs 2–5
MB 833731

Differs from *Trichoconis* spp. by its monoblastic determinate conidiogenous cells and the production of obclavate conidia after schizolytic conidial secession.

Type: Ecuador, Los Ríos province, Cantón Buena Fé, Parroquia Patricia Pilar, 0°35′45″S 79°21′49″W, on submerged decaying leaf of an unidentified plant in stream, 18.III.2019, coll. A. Quevedo, M. Vera & F. Espinoza (**Holotype**, CCMCIBE-H641).

Etymology: *wongii* (Latin) The new species is dedicated to Vicente Wong who provided permission and facilities for sample collection in the Rio Palenque reserve belonging to the Wong Foundation

Colonies on the natural substrate effuse, hypophyllous, funiculose, white. Mycelium mostly superficial and immersed; hyphae septate, branched, smooth, 3–5 µm diam, hyaline. Conidiophores macronematous, mononematous, erect or prostrate, flexuous, sinuous, unbranched, 3–5-septate, smooth, hyaline, 45–80 × 6–9 µm, with 2(–3)-cells clear to translucent toward the apex. Conidiogenous cells monoblastic, cylindrical to slightly subulate, strongly curved to uncinate, integrated, determinate, terminal, smooth, clear to translucent, 8–10 × 3–5 µm. Conidial secession schizolytic. Conidia solitary, acrogenous, obclavate, long fusiform, 8–15-euseptate, rostrate toward the apex, rostrum ≤10 µm long, smooth-walled, hyaline, 200–250 × 10.5–14 µm, with a conspicuous, curved to uncinate, clear to translucent basal cell, 2–4 µm long.

Notes: *Similitrichoconis wongii* presents two clear to translucent cells, the conidiogenous cell and (after schizolytic secession) a conidial basal cell. Both clear to translucent cells could be interpreted either as a 2-celled isthmus or two separating cells; unfortunately despite several attempts we obtained no culture that would clarify this uncommon conidiogenous event. The obclavate conidia with a cylindrical hyaline basal cell in *S. wongii* somewhat resemble *Trichoconis* spp. However, the basal frill observed in *Trichoconis* originates after rhexolytic secession of a narrow cylindrical separating cell produced at several loci of the uniformly colored polyblastic conidiogenous cells (Braun & al. 2016, Silva & al. 2016). The cylindrical denticles and pedunculate cells in *Pendulispora venezuelanica* M.B. Ellis (illustrated by Ellis 1961) are

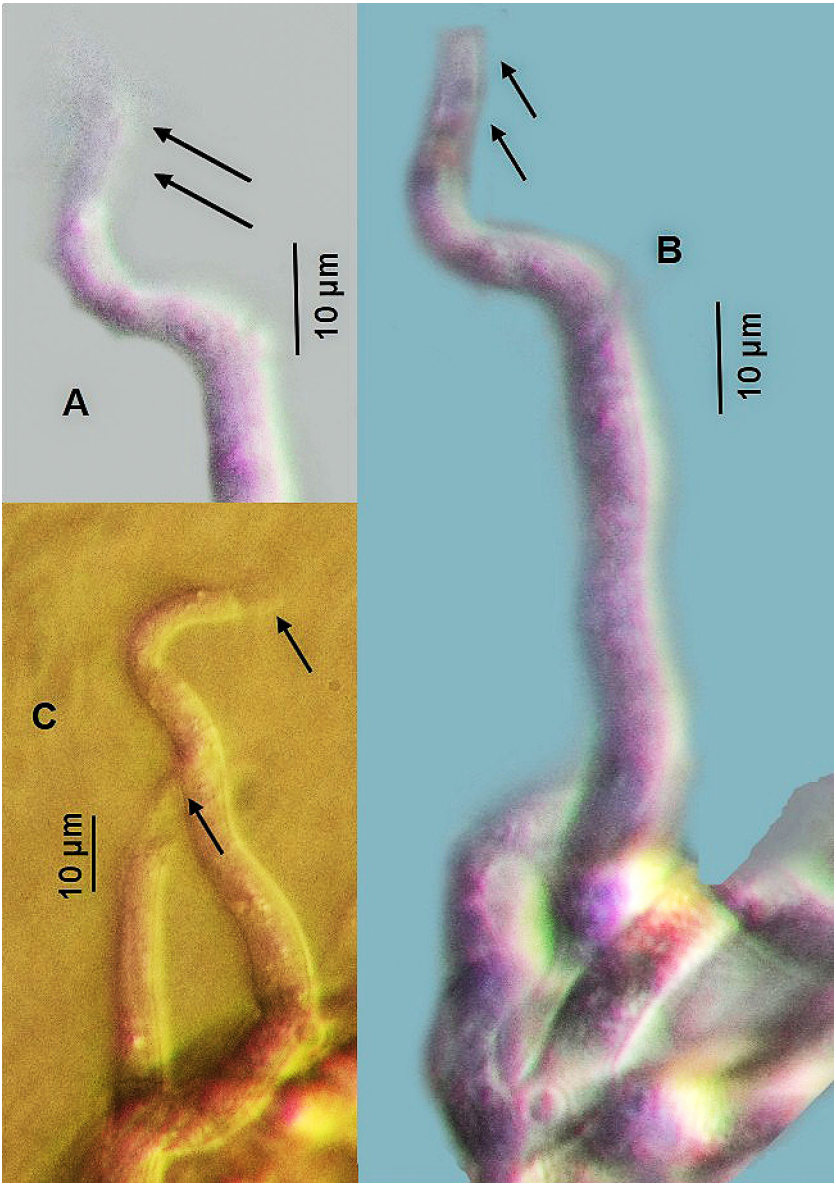

Fig. 3. *Similitrichoconis wongii* (ex-holotype, CCMCIBE-H641). A. Conidiogenous cell; B, C. Conidiophores and conidiogenous cells. (Arrows indicate clear (A,C) and translucent (B) conidiogenous cells.)

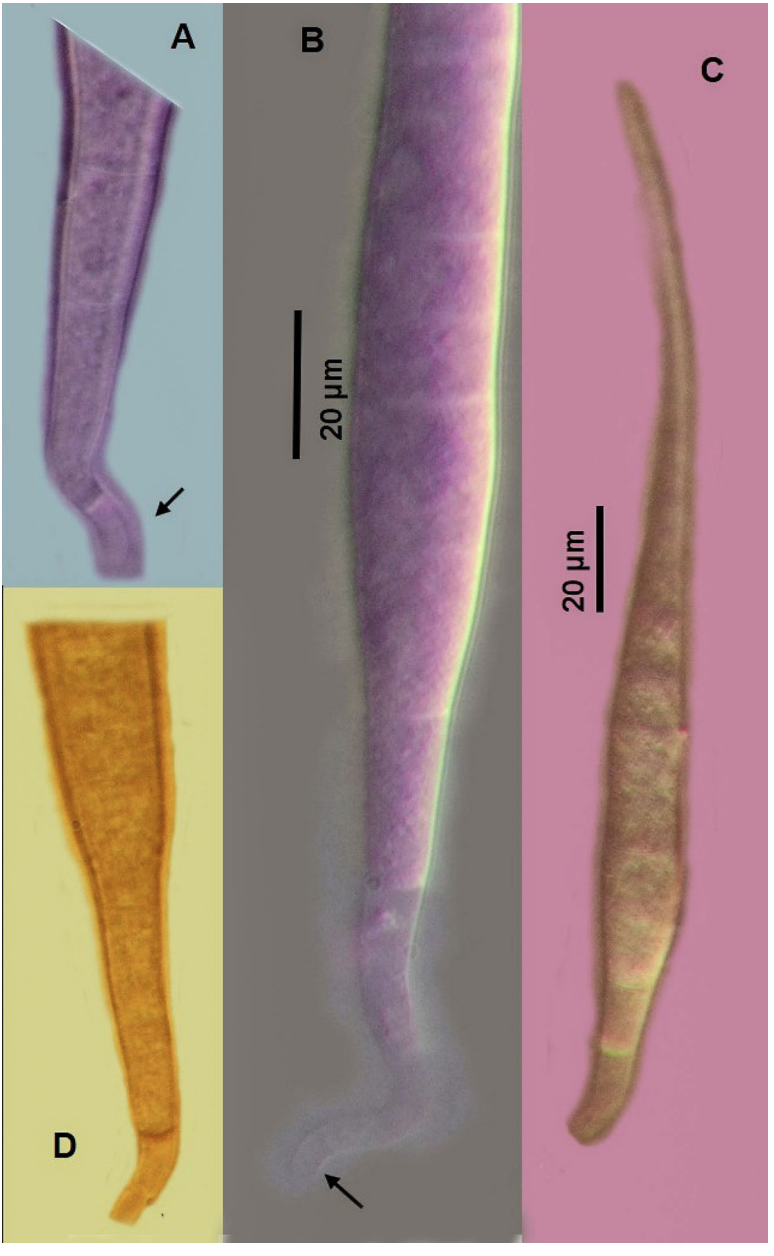

Fig. 4. *Similitrichoconis wongii* (ex-holotype, CCMCIBE-H641). A, D. Lower conidial section above stained translucent basal cells. B. Lower conidial section with curved clear basal cell. C. Conidium with-translucent basal cell.

superficially similar to the conidial basal cells and conidiogenous cells in *S. wongii*, but the evident sympodial extension of the conidiogenous cells are typical of polyblastic conidiogenous cells (Seifert & al. 2011). Ellis (1971), who ignored these sympodial extensions of the conidiogenous cells, described the conidiogenous cells as monoblastic. The existence of hyaline separating cells during and after conidiogenous events occurs in several hyphomycete genera (e.g., *Arcuadendron* Sigler & J.W. Carmich., *Coccidioides* C.W. Stiles, *Chrysosporium* Corda, *Malbranchea* Sacc., *Ovadendron* Sigler & J.W. Carmich.), but there rhexolytic conidial secession occurs during the conidial arthro-thallic disarticulation (Sigler & Carmichael 1976, Seifert & al. 2011).

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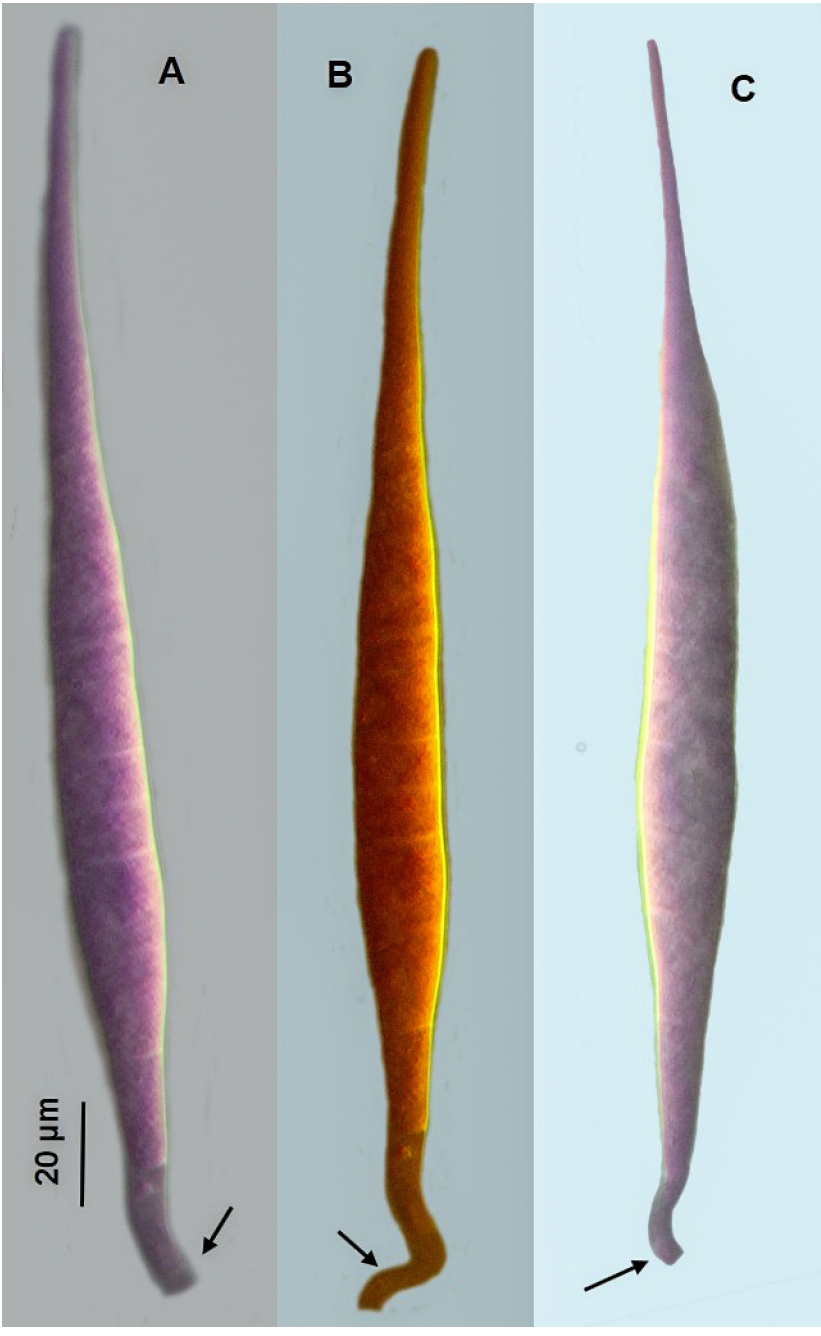
Fig. 5. *Similitrichoconis wongii* (ex-holotype, CCMCIBE-H641). A–C. Conidia with curved translucent basal cells (indicated by arrows) following schizolytic conidial secession.


A
B
C
20 µm

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